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Indian Standard
SPECIFICATION FOR DICOFOL EMULSIFIABLE CONCENTRATES

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(Including Amendment Nos 1 2 & 3)

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Gr 4 *December* 1969

Indian Standard

SPECIFICATION FOR DICOFOL EMULSIFIABLE CONCENTRATES

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(*Continued on page* 16)

AMENDMENT NO. 1 AUGUST 1972

TO

IS : 5279-1969 SPECIFICATION FOR DICOFOL EMULSIFIABLE CONCENTRATES

Alteration

(*Page* 4, *clause* 2.3.1) — Substitute the following for the existing clause:

' **2.3.1** *Dicofol Content* — When determined by the method prescribed in Appendix C, the observed dicofol content, percent by weight, of any of the samples shall not differ from the nominal value by more than the tolerance limits indicated below:

Sl No.	*Nominal Value Percent*	*Tolerance Limit Percent*	
i)	up to 10	$^{+10}_{-5}$	of the nominal value
ii)	Above 10 and up to 50	± 5	,,
iii)	Above 50	$^{+5}_{-3}$	,,

2.3.1.1 The actual value of the technical material in the formulation shall be calculated to the second decimal place and then rounded off to the first decimal place before applying the tolerances given above. '

(AFCDC 6)

Printed at Simco Printing Press, Delhi

AMENDMENT NO. 2 JULY. 1976

TO

IS : 5279-1969 SPECIFICATION FOR DICOFOL EMULSIFIABLE CONCENTRATES

Alteration

[*Page* **4,** *clause* **2.3.1** (**see** *also* Amendment No. 1)] -Substitute the following for the existing clause:

'2.3.1 *Dicofol Content* — When determined by the method prescribed in Appendix C, the observed dicofol content, percent mass/mass of any of the samples shall not differ from the declared nominal value by more than the tolerance limits indicated below:

Nominal Value, Percent	*Tolerance Limit* Percent of the nominal value
Up to 9	+ 10 − 5
10 and below 50	± 5
50 and above	+ 5 − 3

2.3.1.1 The actual value of dicofol content shall be calculated to the second decimal place and then rounded off to the first decimal place before applying the tolerances as stipulated in **2.3.1.**'

(AFCDC 6)

Printed at Simco Printing Press, Delhi

AMENDMENT NO. 3 MAY 1994
TO
IS 5279 : 1969 SPECIFICATION FOR DICOFOL EMULSIFIABLE CONCENTRATES

(*Page* 5, *clause* **4.1**) — Substitute the following for the existing:

'When freshly manufactured material in bulk quantity is offered for inspection, representative samples of the material shall be drawn and tested as prescribed in IS 10627 : 1983 within 90 days of its manufacture. When the material is offered for inspection after 90 days of its manufacture, sampling shall be done as prescribed in IS 10627 : 1983. However, the criteria for conformity of the material when tested, shall be the limits of tolerances, as applicable over the declared nominal value and given under clause **2.3.1** of the standard.'

(FAD 1)

Printed at Simco Printing Press, Delhi

Indian Standard

SPECIFICATION FOR DICOFOL EMULSIFIABLE CONCENTRATES

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 26 September 1969, after the draft finalized by the Pest Control Sectional Committee had been approved by the Agricultural and Food Products Division Council and the Chemical Division Council.

0.2 The emulsifiable concentrates formulations of dicofol are used in the control of acarine pests of agricultural importance.

0.3 Taking into consideration the views of producers, consumers, testing authorities and technologists, the Sectional Committee responsible for the preparation of this standard felt that it should be related to the manufacturing and trade practices followed in the country in this field.

0.4 This standard is one of a series of Indian Standards on pesticides and their formulations.

0.5 This standard contains clauses **E-3.3** and **E-4.4** which call for an agreement between the purchaser and the vendor.

0.6 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS:2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard prescribes the requirements and the methods of test for dicofol emulsifiable concentrates used in the control of acarine pests of agricultural importance.

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*Rules for rounding off numerical values (*revised*).

2. REQUIREMENTS

2.1 The material shall consist of dicofol, technical, dissolved in suitable solvents together with emulsifying agent(s) and, when necessary, stabilizer(s).

2.1.1 Dicofol, technical, employed in the manufacture of the material, shall conform to IS : 5278-1969*.

2.2 Physical — The material shall comply with the physical requirements as described in **2.2.1** to **2.2.4**.

2.2.1 *Description* — The material shall be in the form of a clear stable liquid free from extraneous matter.

2.2.2 *Cold Test* — No turbidity or separation of solid or both or oily matter shall occur when the material is subjected to the cold test at 10°C, as prescribed in Appendix A.

NOTE — If the cold test is required to be carried out at lower than 10°C, it shall be so specified by the purchaser.

2.2.3 *Flash Point (Abel)* — When determined by the method P : 20 of IS : 1448 (Part I)-1960†, the flash point of the material shall be above 24·5°C.

2.2.4 *Emulsion Stability* — The creaming or the sedimentation, if any, shall not in either case exceed 2·0 ml at the top or bottom of 100 ml cylinder, when tested by one of the methods prescribed in Appendix B.

2.3 Chemical — The material shall comply with the chemical requirements given in **2.3.1** and **2.3.2**.

2.3.1 *Dicofol Content* — When determined by the method prescribed in Appendix C, the observed dicofol content, percent by weight, of any of the samples shall not differ from the nominal value by more than ±5 percent of the latter.

2.3.2 *Acidity or Alkalinity* — When determined by the method prescribed in Appendix D, the acidity, if any, calculated as sulphuric acid (H_2SO_4) or alkalinity, if any, calculated as sodium hydroxide (NaOH), shall be not more than 0·1 percent by weight.

3. PACKING AND MARKING

3.1 Packing — The material shall be packed in mild steel containers lined with baked phenolic or baked epoxy phenolic or anodized aluminium drums.

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*Specification for dicofol technical (*under print*).

†Methods of test for petroleum and its products, Part I

3.1.1 The packing shall also conform to Tariff Rules as in force from time to time for packing of goods falling in the category of materials of high flash point.

3.2 Marking — The containers shall be securely closed and shall bear legibly and indelibly the following information:

a) Name of the material;

b) Name of the manufacturer;

c) Date of manufacture;

d) Batch number;

e) Net volume of contents; and

f) Nominal technical dicofol content, percent by weight, and minimum cautionary notice worded as under:

'KEEP AWAY FROM FOODSTUFFS AND ANIMAL FEEDS. DESTROY EMPTY CONTAINERS.'

3.2.1 The product may also be marked with Standard Mark.

3.2.2 The use of the Standard Mark is governed by the provisions of the Bureau of Indian Standards Act, 1986 and the Rules and Regulations made thereunder The details of conditions under which the licence for the use of Standard Mark may be granted to manufactures or producers may be obtained from the Bureau of Indian Standards.

4. SAMPLING

4.1 Representative samples of the material shall be drawn as prescribed in Appendix E.

5. TESTS

5.1 Tests shall be carried out by the appropriate methods referred to in **2.2.2**, **2.2.3**, **2.2.4**, **2.3.1** and **2.3.2**.

5.2 Quality of Reagents — Unless specified otherwise, pure chemicals and distilled water (*see* IS : 1070-1960*) shall be employed in tests.

NOTE — 'Pure chemicals' shall mean chemicals that do not contain impurities which affect the results of analysis.

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*Specification for water, distilled quality (*revised*).

APPENDIX A

(*Clause* 2.2.2)

COLD TEST

A-1. PROCEDURE

A-1.1 Take 50 ml of the material in a 100-ml transparent glass container and close it with a cork or stopper fitted with the thermometer. Cool the material to 10°C (*see* Note) by placing the container in the water maintained at 9° to 10°C. When the temperature of the material in the container reaches 10°C, add to it a small seeding crystal of dicofol with minimum opening of the stopper within the shortest possible duration of time. Gently stir the material in the container at intervals for one hour maintaining the temperature of the material at 10°C. At the end of one hour, examine the material for any turbidity or separated solid or oily matter or both.

NOTE — In case the purchaser specified that the test is required to be carried out at 0°C, the material in a container shall be cooled to 0°C by placing the container in a bath of crushed ice and the test carried out at 0°C instead of 10°C.

APPENDIX B

(*Clause* 2.2.4)

DETERMINATION OF EMULSION STABILITY

B-1. METHODS

B-1.1 Two methods are prescribed for the determination of emulsion stability of the material. The method to be employed shall depend upon the manufacturer's instructions for the preparation of the diluted emulsion from the material. Method 1 shall be employed in the case of a material which is required to be added to standard hard water for the preparation of the diluted emulsion, while Method 2 shall be employed in the case of a material to which standard hard water should be added to prepare the diluted emulsion.

B-2. METHOD 1

B-2.1 Apparatus

B-2.1.1 *Beaker* — 250 ml capacity, with an internal diameter of 6·0 to 6·5 cm and marked at 100 ml.

B-2.1.2 *Mohr Type Pipette*

B-2.1.3 *Glass Rod* — 4 to 6 mm in diameter and of a convenient length.

B-2.1.4 *Graduated Cylinder* — 100 ml capacity and graduated at each millilitre from 2 to 100 ml.

B-2.2 Reagent

B-2.2.1 *Standard Hard Water* — Dissolve 2·740 g of calcium carbonate and 0·276 g of magnesium oxide in the minimum of dilute hydrochloric acid (approximately 2N). Expel the excess acid by evaporation to dryness on a water-bath and dissolve the residue in a small quantity of water. Transfer this solution quantitatively to a 100-ml graduated flask, make up the volume with water and mix. Pipette 10 ml of this solution into a one-litre graduated flask, make up the volume with water and mix.

NOTE — Standard hard water is defined as 'water' which provides a hardness of 342 parts per million, calculated as calcium carbonate and has the following composition:

Calcium chloride, anhydrous	0·304 g
Magnesium chloride, hexahydrate	0·139 g
Distilled water	To make 1 000 ml

B-2.3 Procedure — Pour 75 to 80 ml of standard hard water at a temperature of 30° ± 1°C into the beaker. By means of the Mohr type pipette, add 5 ml of the concentrate to the standard hard water contained in the beaker. The material should be added to the standard hard water at the rate of 25 to 30 ml per minute, with the pointed end of the pipette 2·0 cm inside the beaker and allowing the material to pour directly into the standard hard water and not along the sides of the beaker. The contents of the beaker should be stirred vigorously with a glass rod during the addition. Add more water to bring the volume of the diluted emulsion to the 100-ml mark with continued stirring and transfer immediately to the clean and dry graduated cylinder. Keep the cylinder with its contents at a temperature of 30° ± 1°C in a thermostatically controlled bath for half an hour. After the half hour, note the volume of the creamed matter at the top and the sediment at the bottom, if any.

B-2.4 Report — Report the total volume in millilitres of the creamed matter at the top and the sediment at the bottom in the cylinder.

B-3. METHOD 2

B-3.1 Procedure — Place 5 ml of the concentrate in the beaker. Add sufficient standard hard water at a temperature of 30° ± 1°C into the dropping funnel and add it to the material contained in the beaker at the rate of 15 to 20 ml per minute. During the addition, continuously stir the contents of the beaker with the glass rod. Stop the addition of the standard hard water just when the volume of diluted emulsion in the beaker reaches 190 ml. Transfer the diluted emulsion immediately to the clean and dry graduated cylinder. Keep the cylinder with its contents at a temperature of 30° ± 1°C in a thermostatically controlled bath for half an hour. After the half hour, note the volume of the creamed matter at the top and the sediment at the bottom, if any.

B-3.2 Report — Report the total volume in millilitres of the creamed matter at the top and the sediment at the bottom in the cylinder.

APPENDIX C

(*Clause* 2.3.1)

DETERMINATION OF DICOFOL CONTENT

C-1. REAGENTS

C-1.1 Ethyl Alcohol — 95 percent.

C-1.2 Ethanolic Potassium Hydroxide — 0·5 N.

C-1.3 Concentrated Nitric Acid — analytical reagent grade conforming to IS : 264-1968*.

C-1.4 Ferric Alum Indicator — Dissolve 350 g of ferric ammonium sulphate crystals in 700 ml distilled water, heating gently, if necessary. Add 50 ml of concentrated nitric acid, dilute to 1 litre with distilled water and mix thoroughly.

C-1.5 Nitrobenzene

C-1.6 Standard Silver Nitrate Solution — 0·1 N.

C-1.7 Standard Ammonium Thiocyanate Solution — 0·1 N.

C-1.8 Phenolphthalein Indicator Solution — Dissolve 0·5 g of phenolphthalein powder in 100 ml of 95 percent ethyl alcohol.

C-2. PROCEDURE

C-2.1 Weigh accurately sufficient quantity of the material containing 0·5 g of the technical material in an erlenmeyer flask. Add 50 ml of the standard ethanolic potassium hydroxide solution to the sample. Place the flask on a hot-plate and connect the neck of the flask to a water-cooled condenser, using 3 to 4 drops of 95 percent ethyl alcohol as a seal. Boil the solution

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*Specification for nitric acid (*revised*).

under gentle reflux for 90 minutes. At the end of this time, stop heating and allow the flask to cool slightly, rinse the condenser with 25 ml of 95 percent ethyl alcohol. Disconnect the flask and rinse the tip of the condenser with 95 percent ethyl alcohol, adding the rinsings to the flask.

C-2.2 Drain the liquid contents of the flask into a 400-ml beaker, add 50 ml of 95 percent ethyl alcohol to the flask. Swirl the flask, and again drain the liquid contents into the 400-ml beaker. Add approximately 100 ml of distilled water to the flask, swirl, and add the contents of the flask to the 400 ml beaker by stirring. Rinse the flask with small portions of distilled water and add the rinsings to the 400-ml beaker by stirring. Continue rinsing the flask until there is a total volume of approximately 300 ml in the beaker.

C-2.3 Place the beaker on a steam-bath until all of the alcohol has been evaporated. Cool the beaker in a water-bath and add 2 to 3 drops of standard phenolphthalein indicator solution and sufficient 1 : 1 nitric acid to turn the indicator colourless. Add an additional 10 ml of 1 : 1 nitric acid and 50 ml of the standard silver nitrate solution. Thoroughly mix the contents of the beaker. Add 5 ml of ferric alum indicator solution, 5 ml of nitrobenzene to the beaker, stir vigorously, and titrate the excess silver nitrate with the standard ammonium thiocyanate solution with vigorous stirring, until the appearance is of a faint but permanent pink end-point.

C-3. CALCULATION

C-3.1 Active ingredient, percent content =

$$\frac{(\text{ml AgNo}_3\text{ for sample} - \text{ml AgNo}_3\text{ for blank})}{\text{weight of sample (grams)}} \times N \times 12{\cdot}351$$

NOTE — Run a blank determination through all steps of the procedure using all reagents except the material to be analyzed.

APPENDIX D

(*Clause* 2.3.2)

DETERMINATION OF ACIDITY OR ALKALINITY

D-1. QUALITATIVE TEST

D-1.1 Procedure — Take about 0·5 ml of the material in a test-tube and mix with about one millilitre of water. Test the mixture for acidity or alkalinity with a litmus paper. Determine, as the case may be, the acidity (*see* **D-2**) or the alkalinity (*see* **D-3**).

D-2. DETERMINATION OF ACIDITY

D-2.1 Reagents

D-2.1.1 *Methyl Red Indicator Solution* — prepared by dissolving 0 15 g of the indicator in 500 ml of water.

D-2.1.2 *Standard Sodium Hydroxide Solution* — 0·02 N.

D-2.1.3 *Standard Hydrochloric Acid* — 0·02 N.

D-2.2 Procedure — Weigh accurately about 10 g of the material into a dry conical flask and dilute with 100 ml of water. Titrate the contents of the flask immediately with the standard sodium hydroxide solution using methyl red as the indicator. Alternatively, the end-point may be determined pontentiometrically.

D-2.2.1 Carry out a blank determination on 100 ml of water.

D-2.3 Calculation

$$\text{Acidity (as } H_2SO_4\text{), percent by weight} = \frac{4{\cdot}9\,(V - v)\,N}{W}$$

where

V = volume in ml of the standard sodium hydroxide solution required for the test,

v = volume in ml of the standard sodium hydroxide solution required for the blank determination,

N = normality of the standard sodium hydroxide solution, and

W = weight in g of material taken for the test.

D-2.3.1 In case the blank determination shows alkaline reaction, neutralize with the standard hydrochloric acid and calculate the acidity as follows:

$$\text{Acidity (as } H_2SO_4\text{), percent by weight} = \frac{4{\cdot}9\,(VN_1 + vN_2)}{W}$$

where

V = volume in ml of the standard sodium hydroxide solution required for the test,

N_1 = normality of the standard sodium hydroxide solution,

v = volume in ml of the standard hydrochloric acid required for the blank determination,

N_2 = normality of the standard hydrochloric acid, and

W = weight in g of the material taken for the test.

D-3. DETERMINATION OF ALKALINITY

D-3.1 Reagents

D-3.1.1 *Methyl Red Indicator Solution* — prepared by dissolving 0·15 g of the indicator in 500 ml of water.

D-3.1.2 *Standard Hydrochloric Acid* — 0·02 N.

D-3.1.3 *Standard Sodium Hydroxide Solution* — 0·02 N.

D-3.2 Procedure — Weigh accurately about 10 g of the material into a dry conical flask and dilute with 100 ml of water. Titrate the contents of the flask immediately with the standard hydrochloric acid, using methyl red as the indicator. Alternatively, the end-point may be determined potentiometrically.

D-3.2.1 Carry out a blank determination with 100 ml of water.

D-3.3 Calculation

$$\text{Alkalinity as (NaOH), percent by weight} = \frac{4{\cdot}0\,(V - v)\,N}{W}$$

where

V = volume in ml of the standard hydrochloric acid required for the test,

v = volume in ml of the standard hydrochloric acid required for the blank determination,

N = normality of the standard hydrochloric acid, and

W = weight in g of the material taken for the test.

D-3.3.1 In case the blank determination shows an acid reaction, neutralize with the standard sodium hydroxide solution and calculate the alkalinity as follows:

$$\text{Alkalinity (as NaOH), percent by weight} = \frac{4{\cdot}0\,(VN_1 + vN_2)}{W}$$

where

V = volume in ml of the standard hydrochloric acid for the test,

N_1 = normality of the standard hydrochloric acid,

v = volume in ml of the standard sodium hydroxide solution required for the blank determination,

N_2 = normality of the standard sodium hydroxide solution, and

W = weight in g of the material taken for the test.

APPENDIX E

(*Clause* 4.1)

SAMPLING OF DICOFOL EMULSIFIABLE CONCENTRATES

E-1. GENERAL PRECAUTIONS

E-1.0 In drawing, preparing, storing and handling test samples, the following precautions and directions shall be observed.

E-1.1 Samples shall not be taken in an exposed place.

E-1.2 The sampling instrument shall be of glass or of a metal on which the material has no action and shall be clean and dry when used.

E-1.3 Proper precautions shall be taken while drawing samples since the material is highly poisonous.

E-1.4 Precautions shall be taken to protect the samples, the material being sampled, the sampling instruments and the containers for samples from adventitious contamination.

E-1.5 The samples shall be placed in leak-proof 100-ml aluminium containers of a minimum purity of 99 percent.

E-1.6 The sample containers shall be of such a size that they are almost, but not completely, filled by the sample.

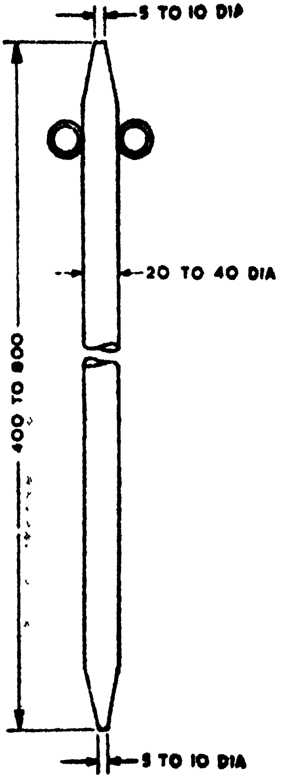
E-1.7 Each sample container shall be fitted with an inner stopper, which shall be sealed in the neck of the container by means of a suitable sealing composition. The container shall then be securely closed by screw cap lined with tin foil. The containers shall then be marked with full details of sampling, the date of manufacture, name of the manufacturer and other particulars of the consignment.

E-1.8 Samples shall be stored in such a manner that the temperature of the material does not vary unduly from the normal temperature.

E-1.9 Samples shall be protected from light.

E-2. SAMPLING INSTRUMENT

E-2.1 Sampling Tube — It shall be made of thick glass or of a metal on which the material has no action, and shall be of 20 to 40 mm diameter and 400 to 800 mm in length (*see* Fig. 1). The upper and lower ends are conical and of 5 to 10 mm diameter at the narrow ends. Handling is facilitated by two rings at the upper end. For taking a sample, the tube is first closed at the top with the thumb or a stopper and lowered until the desired depth is reached. It is then opened for a short time to admit the material and finally closed and withdrawn.



All dimensions in millimetres.

FIG. 1 SAMPLING TUBE

E-2.1.1 For small containers, a smaller sampling tube of suitable dimensions may be used.

E-3. SCALE OF SAMPLING

E-3.1 Lot — All the containers in a single consignment of the material drawn from the same batch of manufacture shall constitute a lot. If a consignment is declared or known to consist of different batches of manufacture, the containers belonging to the same batch shall be grouped together and each such group shall constitute a separate lot.

E-3.1.1 Samples shall be tested for each lot for ascertaining the conformity of the material to the requirements of this specification.

E-3.2 The number (n) of containers to be chosen from the lot shall depend on the size of the lot (N) and shall be in accordance with col 1 and 2 of Table 1.

E-3.3 These containers shall be chosen at random from the lot and in order to ensure the randomness of selection, some random number table as agreed to between the purchaser and the vendor, shall be used. In case such a table is not available, the following procedure shall be adopted:

> Starting from any container in the lot, count them as 1, 2, 3...., up to *r*, in a systematic manner, where *r* is equal to the integral part of the value of N/n, N being the total number of containers in the lot and n the number of containers to be chosen (*see* Table 1). Every *r*th container thus counted shall be separated until the requisite number of containers is obtained from the lot to give the samples for test.

TABLE 1 NUMBER OF CONTAINERS TO BE CHOSEN FOR SAMPLING

(*Clauses* E-3.2 *and* E-3.3)

LOT SIZE N (1)	NO. OF CONTAINERS TO BE CHOSEN n (2)
3 to 15	3
16 „ 40	4
41 „ 65	5
66 „ 110	7
Over 110	10

E-4. TEST SAMPLES AND REFEREE SAMPLES

E-4.1 Before drawing the test samples, mix thoroughly the contents of each container selected by shaking or stirring by suitable means, or by rolling, so as to bring all portions into uniform distribution. Draw by inserting the sampling instrument through the bung-hole or any other convenient opening, small portions of the material from different parts of each selected container. The total quantity of the material drawn from each container shall be not less than 350 ml.

E-4.2 Mix thoroughly all the material drawn from the same container. A small but equal quantity shall be taken from the each selected container and shall be well mixed together so as to form a sample of not less than 450 ml. This sample shall be divided into three equal composite test samples, one for the purchaser, another for the vendor and the third for the referee.

E-4.3 The remaining material drawn from a container (after the quantity needed for formation of the composite test sample has been taken out) shall be divided into three equal parts. These parts shall be immediately transferred separately to thoroughly dried bottles which are then sealed air-tight with stoppers and labelled with all the particulars of sampling given under **E-1.7**. The material in each such sealed bottle shall constitute an individual test sample. These individual test samples shall be separated into three identical sets of individual test samples in such a way that each set has a sample representing each selected container. One of these three sets shall be marked for the purchaser, another for the vendor and the third for the referee.

E-4.4 Referee Samples — Referee samples shall consist of the composite test sample (*see* **E-4.2**) and a set of individual test samples (*see* **E-4.3**) marked for this purpose and shall bear the seals of the purchaser and the vendor. These shall be kept at a place agreed to between the two.

E-5. TESTING OF SAMPLES

E-5.0 The number of tests mentioned in **E-5.1** and **E-5.2** shall be first conducted on the test samples marked for the purchaser. In the contingencies, such as loss, spoilage and spilling, of the purchaser's test samples or if the vendor so desires, the test samples marked for the vendor may be tested. In case of a dispute, the referee test samples shall be tested and the test results obtained on the referee test samples shall be considered as final.

E-5.1 Tests for the determination of dicofol content and emulsion stability shall be conducted on each of the individual samples (*see* **E-4.3**).

E-5.2 Tests for the determination of the remaining characteristics, namely cold test, flash point, and acidity or alkalinity shall be conducted on the composite test samples (*see* **E-4.2**).

E-6. CRITERIA FOR CONFORMITY

E-6.1 A lot shall be declared as conforming to this specification where

a) each of the test results for emulsion stability and dicofol content satisfies the corresponding requirements specified in **2.2.4** and **2.3.1**.

b) the test results on the composite test sample for cold test, flash point, and acidity or alkalinity, satisfy the corresponding requirements given in **2**.

E-6.1.1 In case one or more of the test results do not satisfy the requirements for dicofol content and emulsion stability, the following procedure shall be adopted for determining the conformity of the material in respect of these characteristics. The mean and range of the corresponding test results shall be calculated as:

$$\text{Mean } (\bar{X}) = \frac{\text{Sum of the test results}}{\text{Number of test results}}$$

Range (R) = Difference between the highest and the lowest value obtained for the test results.

The appropriate expression as shown in col 6 of Table 2 shall be calculated. If the values of these expressions satisfy the relevant condition as given in col 6 of Table 2 the lot shall be declared to have satisfied the requirements for dicofol content and emulsion stability.

TABLE 2 CRITERIA FOR CONFORMITY

(*Clause* E-6.11)

SL No.	CHARACTERISTICS	TEST RESULTS 1, 2, ..., n	MEAN	RANGE	CRITERION FOR CONFORMITY
(1)	(2)	(3)	(4)	(5)	(6)
i)	Dicofol content	—	$\bar{X}_1$	R_1	$\bar{X}_1 \pm 0{\cdot}6\ R_1$ shall lie within the nominal value ±5 % of the nominal value
ii)	Emulsion stability	—	$\bar{X}_2$	R_2	$\bar{X}_2 + 0{\cdot}6\ R_2 < 2{\cdot}0$

(*Continued from page* 2)

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